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ABSTRACT

In order to determine the changes in high school graduation requirements and their impact on vocational education programs, a longitudinal study was initiated to track high school and vocational education program enrollments in Virginia and the United States for five years beginning with the 1984-85 school year. A questionnaire was prepared and sent to directors of vocational education in all states and U.S. possessions, with a total of 53 responses received. The survey showed that 45 of the states and territories have increased or were in the process of increasing the requirements for high school graduation. Enrollments in high school increased in 11 states, decreased in 33 states, and were unchanged in 8 states or territories. In vocational education, 15 states and territories increased enrollments, 13 reported no change, and 22 states decreased enrollments. Follow-up telephone interviews were conducted with respondents from four states with decreased vocational enrollments but increased high school enrollments; three of the four felt that increased high school graduation requirements were the primary reason for the decrease in vocational enrollments. Telephone interviews with respondents from nine states with increased vocational enrollments despite high school enrollment declines indicated that the following conditions were major factors in the increases: (1) funding allocations based on student census; (2) relevant and marketable programs; (3) cooperative work experience programs; (4) adult enrollment in daytime programs; (5) variable time periods for vocational courses; and (6) increased emphasis on prevocational education programs before high school. The report recommends that vocational administrators be sensitive to enrollment declines and use strategies to enroll students in vocational education courses. Data is graphically displayed in 12 shaded maps. Appendixes include the survey instrument; a list of state directors of vocational education; a tabulation of high school graduation requirements by state since 1931; a table of 1984-85 enrollment patterns for grades 9-12; and a list of additional comments from state directors. (KC)

ED275833

A Report On

High School Graduation Requirements and Enrollment Patterns in High School Vocational Education Programs In The United States

A Study Conducted

By

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PROJECT REPORT SUMMARY

One response to public demand for educational improvement has been increased high school graduation requirements. A result of increased high school graduation requirements is decreased time available for student electives which may affect student enrollment in vocational education programs.

In order to determine the changes in high school graduation requirements and their impact on vocational education programs a longitudinal study was initiated to track high school and vocational education program enrollments in Virginia and the United States for a period of five years beginning with the 1984-85 school year. One aspect of the study was a national survey of all the states and territories of the United States to obtain information pertaining to graduation requirements and enrollment trends. A questionnaire was prepared and sent to directors of vocational education in every state and possession of the United States. Usuable questionnaires were returned by 47 of the 50 states, the District of Columbia, Guam, Puerto Rico, and the Virgin Islands. Two additional states responded via telephone followup for a total of 53 responses to the survey.

The information obtained from the survey with respect to graduation requirements indicated that forty-five of the states and territories have increased or were in the process of increasing the requirements for high school graduation. In fifteen of the states and territories, vocational education courses were part of the requirements for graduation from high school. In twenty-eight of the states and territories vocational education courses were accepted or approved as appropriate alternatives for mathematics, science, and English courses. Eleven states and territories indicated increased high school enrollments in grades nine through twelve for the 1984-1985 school year. Thirty-three states and territories reported decreased secondary enrollments; eight respondents reported no change in enrollments for the 1984-85 school year.

The data reported for 1984-85 enrollments in vocational education indicated that fifteen states and territories increased enrollments in vocational education, thirteen states reported no change in enrollments and twenty-two states decreased vocational enrollments. Follow-up telephone interviews were made with the respondents from four states with decreased vocational enrollments but increased high school enrollments to ascertain their viewpoints about causal factors. Three of the respondents indicated that increased high school graduation requirements were the primary reasons that decreased student enrollments in vocational education occurred in their states. Nine states reported increased vocational education enrollments while overall high school enrollments declined in 1984-85. Telephone interview results from respondents indicated that major factors in increased vocational educational enrollments were (1) funding allocations to local school districts based on student census rather than salary supplements or equipment funds, (2) offering relevant and marketable programs, (3) cooperative work experience programs in schools that require full course loads for students, (4) enrolling displaced homemakers and adults in the secondary school daytime vocational education programs, (5) allowing variable time periods for vocational education couses, and (6) increased emphasis on prevocational education programs before high school. It is recommended that state and local administrators of vocational education be responsive to enrollment declines and use initiatives and strategies to provide opportunities for students to enroll in vocational education courses.

In 1983 a critical incident occurred that shaped the direction of education in every state in the nation. The release of the report entitled A Nation At Risk(1) created a surge of interest in revitalizing and reforming education in this country. This interest galvanized political action at state levels and precipitated a response to public demand for educational improvement through the revamping of teacher certification standards and high school graduation requirements.

One result of increasing high school graduation requirements is a decrease in the time available for student electives. As the National Commission on Secondary Vocational Education stated in their report, The Role of Vocational Education in The High School(2), "this national movement toward more and specific academic requirements . . . constrains students' access to vocational education." The report With Consequences For All(3), published by the Association for Supervision and Curriculum Development, indicated that large numbers of the third quartile of academically successful students "are in vocational programs that new requirements will scale down or eliminate in most states. If the removal of such alternatives results in extensive withdrawals among third quartile students the aggregate impact of the new requirements will reduce rather than increase academic learning for many students. Simultaneously, this quartile will be denied access to courses that promote their retention in school and employability."

Related Literature

Several studies about high school graduation requirements have been conducted since the release of A Nation At Risk in 1983. The Education Commission of the States conducted a survey in November and December of 1983 to determine graduation requirements in the fifty states of the country. The Commission found many states had increased graduation requirements with others contemplating major revisions in the near future.(4) A national survey of state

trends in graduation requirements was conducted by Dyrenfurth in 1984.(5) The results indicated that forty states had approved or were considering increased high school graduation requirements with additional courses in mathematics, science, English, or social science. Five states had incorporated vocational education courses as part of the high school graduation requirements and thirteen states had vocational education as a choice within the state graduation requirements. In twenty-seven of the states separate requirements were in place for a college-preparatory diploma which required additional coursework beyond the general graduation requirements.

Findings of other recent studies also suggest a trend toward students taking fewer vocational courses. Gehnke and Sheffield conducted a study comparing the 1975 and 1983 class schedules for teachers of eight metropolitan school districts in the United States.(6) They found a decrease (-36%) in the number of industrial arts classes and an increase in the number of mathematics (+24%) and general science courses (+89%). A recent study of high school course offerings in California between 1982 and 1985 showed substantially more sections of mathematics (+19%), science (+22%), and foreign languages (+12%) and comparable decreases in sections of home economics (-21%), industrial arts (-16%) and business education (-11%).(7) The same study indicated that substantial increases occurred in the number of advanced placement course offerings particularly in chemistry, physics, and history (+34%).

From a survey of sixty-eight school districts with 5,000 or more students, Price reported that increased graduation requirements and decreased funding were causing reductions in student enrollments in vocational education courses in California.(8) Sixty percent of the districts reported declining enrollments, thirty percent reported an increase and ten percent reported they were maintaining the same level of enrollment. Those districts reporting increased enrollments in vocational courses indicated that strong administrative and

school board support and student interest as important factors; those districts that maintained enrollment attributed their success to implementing a six-period day with an optional seventh period class.

Anderson and Brouillette studied the effect of increased academic requirements for high schools in Colorado.(9) They concluded that increases in academic requirements for graduation, especially in high schools with enrollments above five hundred students, tends to decrease secondary vocational enrollments in Colorado. Cooperative work experience programs suffered the most serious decline in enrollment. However, the authors note that "since many districts have increased their academic requirements for graduation within the last two years, the ultimate effect this will have upon enrollments in secondary vocational programs and the high school dropout rate is yet to be determined."

Description of the Study

In an effort to determine the impact of changes in high school graduation requirements on vocational education, a longitudinal study has been initiated by the Division of Vocational and Technical Education at Virginia Polytechnic Institute and State University with funding from the Virginia Department of Education. Baseline data establishing current high school enrollment patterns were collected and analyzed for the period of 1981-82 through 1985-86. The study will then track high school and vocational education program enrollments in Virginia and the United States for a period of five years beginning with the 1985-86 school year. These data will be analyzed according to local school division, vocational program area, and comprehensive versus area vocational high schools. Composition of vocational education programs will also be examined to determine increases or decreases in types of students enrolled such as handicapped, disadvantaged, males and females. To ascertain causal factors a follow-up will be made through on-site visitations to those school divisions that reported significant increases or decreases in vocational education

enrollments.

A second aspect of the study was a national survey of all the states and territories of the United States to obtain information pertaining to graduation requirements and enrollment trends. A questionnaire was prepared and reviewed by a panel of qualified individuals. After making revisions based upon the panel members' reactions, the questionnaire (see Appendix A) was sent to the directors of vocational education in every state and territory under control of the United States (see Appendix B). The questionnaire was returned by forty-seven of the fifty states and four of the six territories with one state, Colorado, declining to respond since a similar study was underway in that state. Two states, Rhode Island and Arkansas, were contacted by telephone to obtain the information requested on the questionnaire. In addition to the information obtained from the forty-nine states, the District of Columbia, Guam, Puerto Rico, and the Virgin Islands returned completed questionnaires. Detailed results of the survey are found in Appendices C through E. The remainder of this report discusses results of this national survey.

High School Graduation Requirements

The information obtained from the survey with respect to graduation requirements indicated that forty-five of the states and territories had increased or were in the process of increasing the requirements for high school graduation. Six states and two territories reported no changes in requirements for high school graduation (see Figure 1). In fifteen of the states and territories surveyed, vocational education courses were part of the requirements for graduation from high school (see Figure 2). In twenty-eight of the states and territories vocational education courses were appropriate as alternatives for mathematics, science, and English courses although many of the states reported that this was a local school board option rather than a state- wide mandate (see Figure 3).

FIGURE 1

HIGH SCHOOL REQUIREMENTS INCREASED

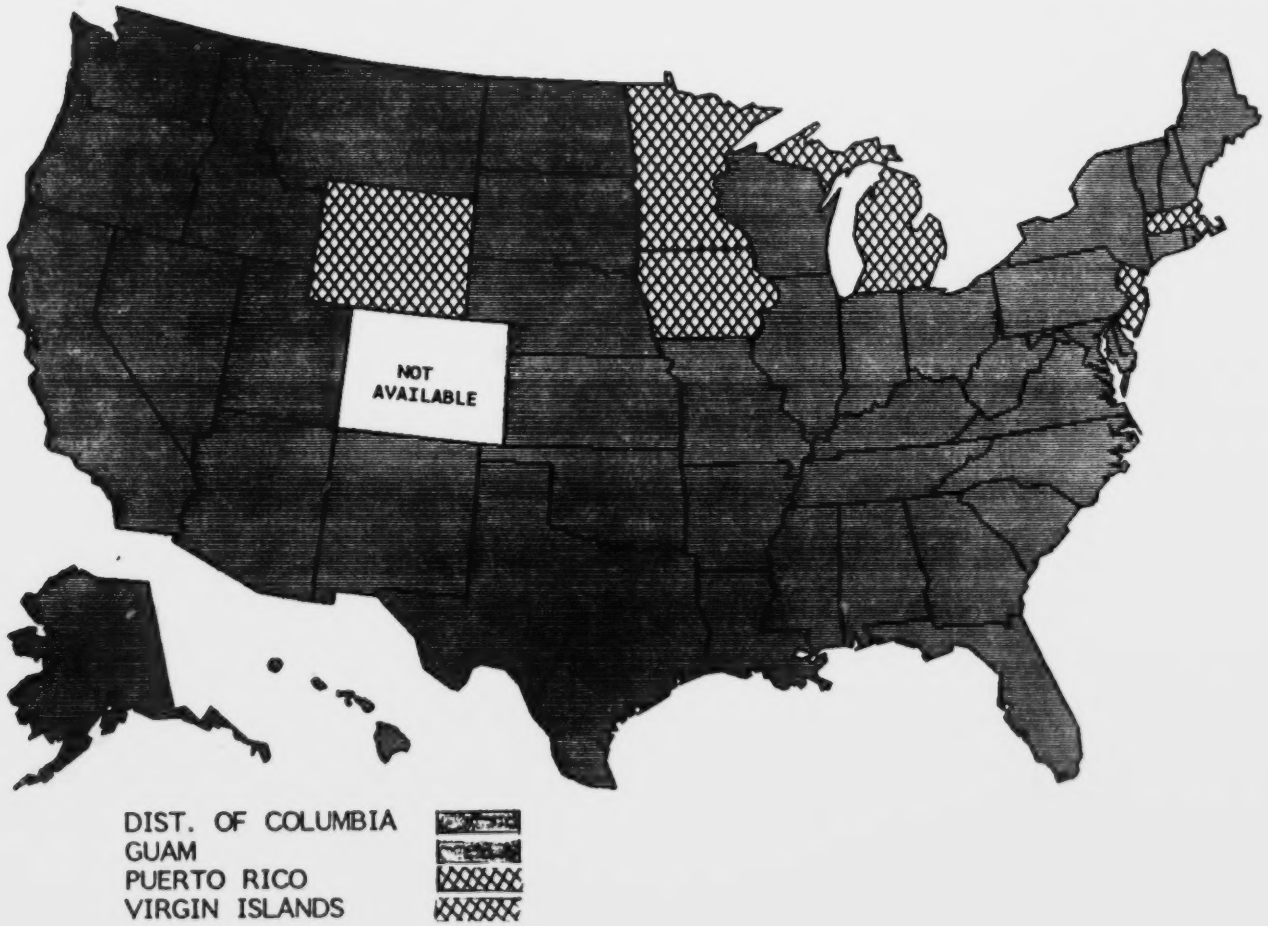
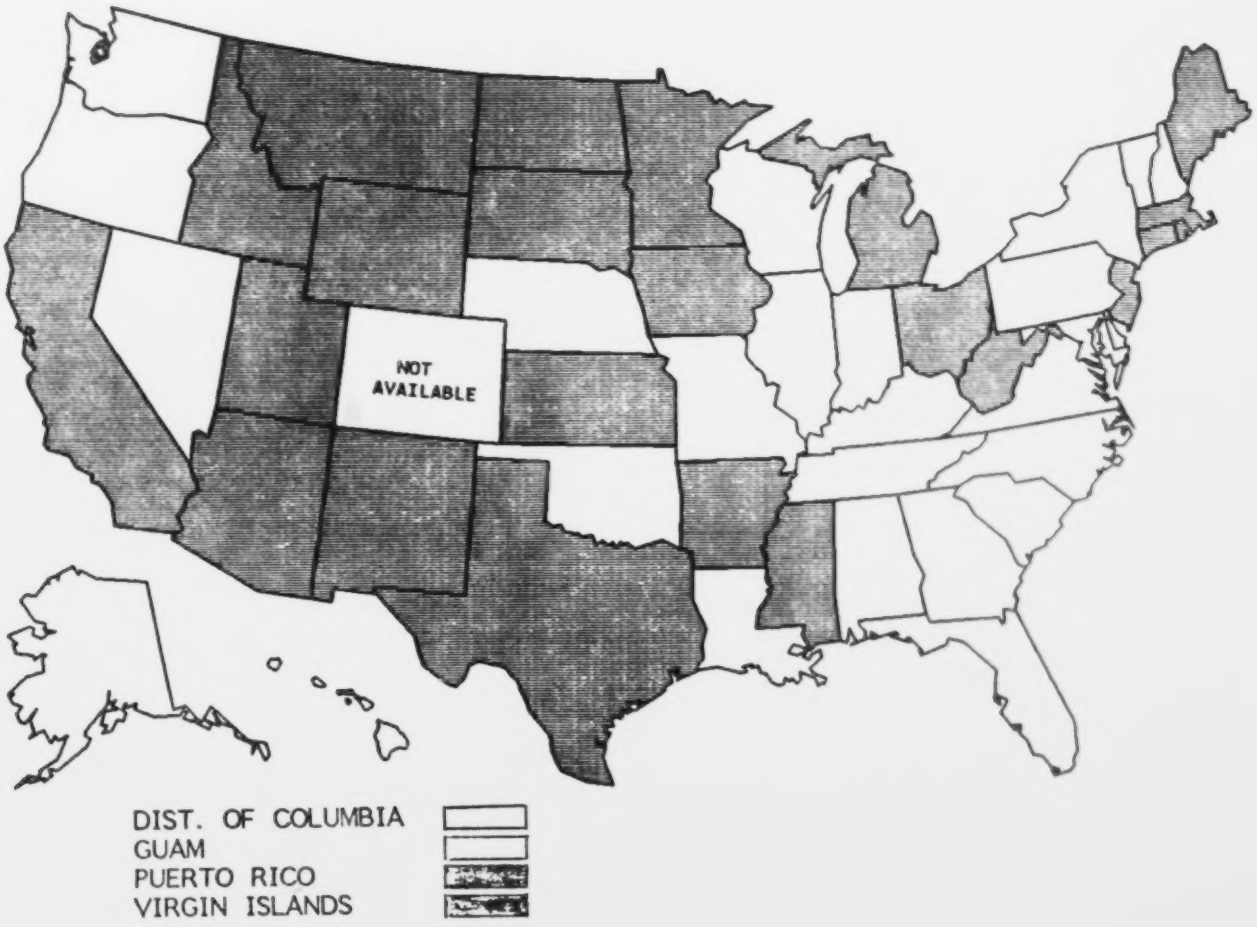


FIGURE 2

VOCATIONAL EDUCATION COURSES REQUIRED FOR GRADUATION

FIGURE 3

VOCATIONAL EDUCATION COURSES AS ALTERNATIVES TO MATHEMATICS/SCIENCE GRADUATION REQUIREMENTS



Enrollment Patterns

There were eleven states and territories that indicated increased high school enrollments in grades nine through twelve for the 1984-1985 school year as shown in Figure 4. A total of thirty-three states and territories reported decreased enrollments with eight respondents reporting no change in enrollments for the 1984-85 school year. Most of the states and territories with increased high school enrollments were in areas of the nation which have increased total population. Most of those states with decreased high school enrollments are in sections of the country with losses in total population and/or losses in high school aged youth. Many of the states with increased high school enrollments are in the southwestern section of the country.

The data reported for 1984-1985 enrollments in vocational education indicated that fifteen states and territories had increased enrollments in vocational education as shown in Figure 5. There were thirteen states that reported no change in enrollments (see Table 1) with twenty-two states having decreased enrollments in vocational education. Four states indicated the data were not available. Of the twenty-two states with vocational education enrollment declines (see Table 1) , four -- Alaska, Arizona, Michigan, and New Hampshire -- reported increases in the total number of students enrolled in high school as shown in Figure 6. A follow-up telephone interview was made with the respondents from each of the four states to ascertain their viewpoints about decreased vocational education enrollments while the overall high school enrollments were increasing. The respondent from the state of New Hampshire indicated that the state was experiencing a large increase in population from residents moving into the state from bordering states. The decrease in vocational education enrollments was attributed to the increase in the number of courses required for graduation from high school. These graduation requirements were initiated in 1984 by most local school divisions in the state. In Arizona,

FIGURE 4

HIGH SCHOOL ENROLLMENT 1984-85

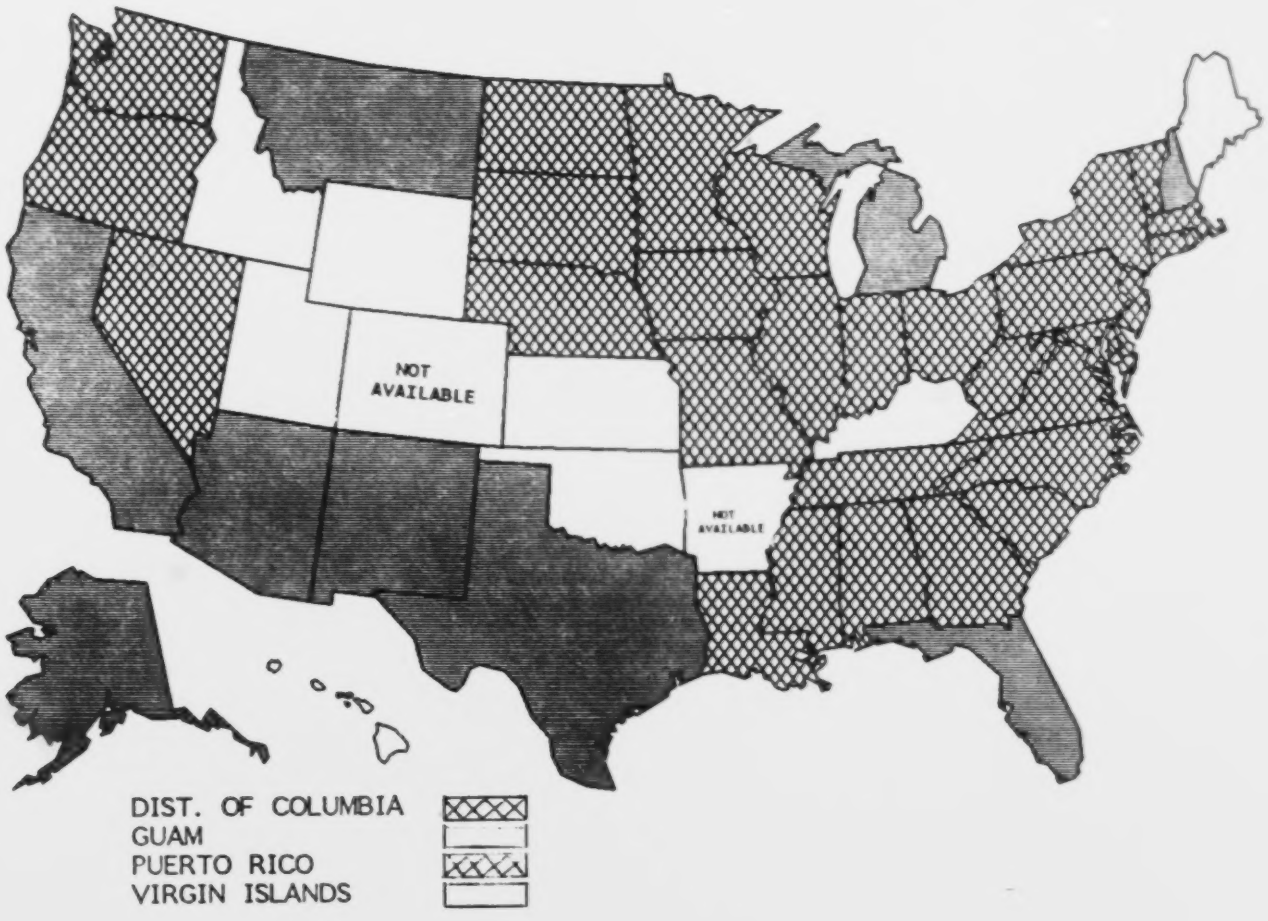


FIGURE 5

VOCATIONAL EDUCATION ENROLLMENT 1984-85

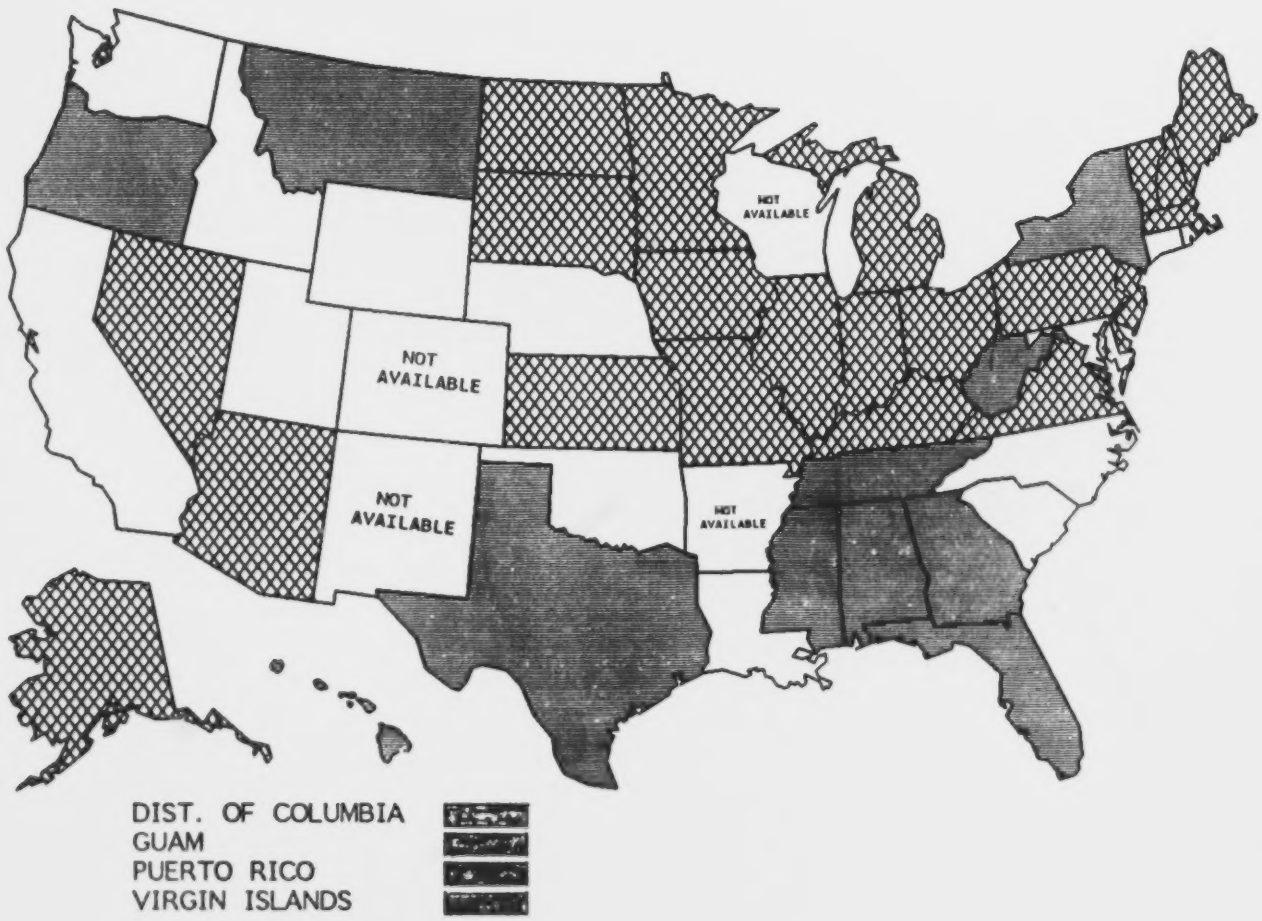


FIGURE 6

INCREASED HIGH SCHOOL - DECREASED VOCATIONAL EDUCATIONAL ENROLLMENTS

1984-85

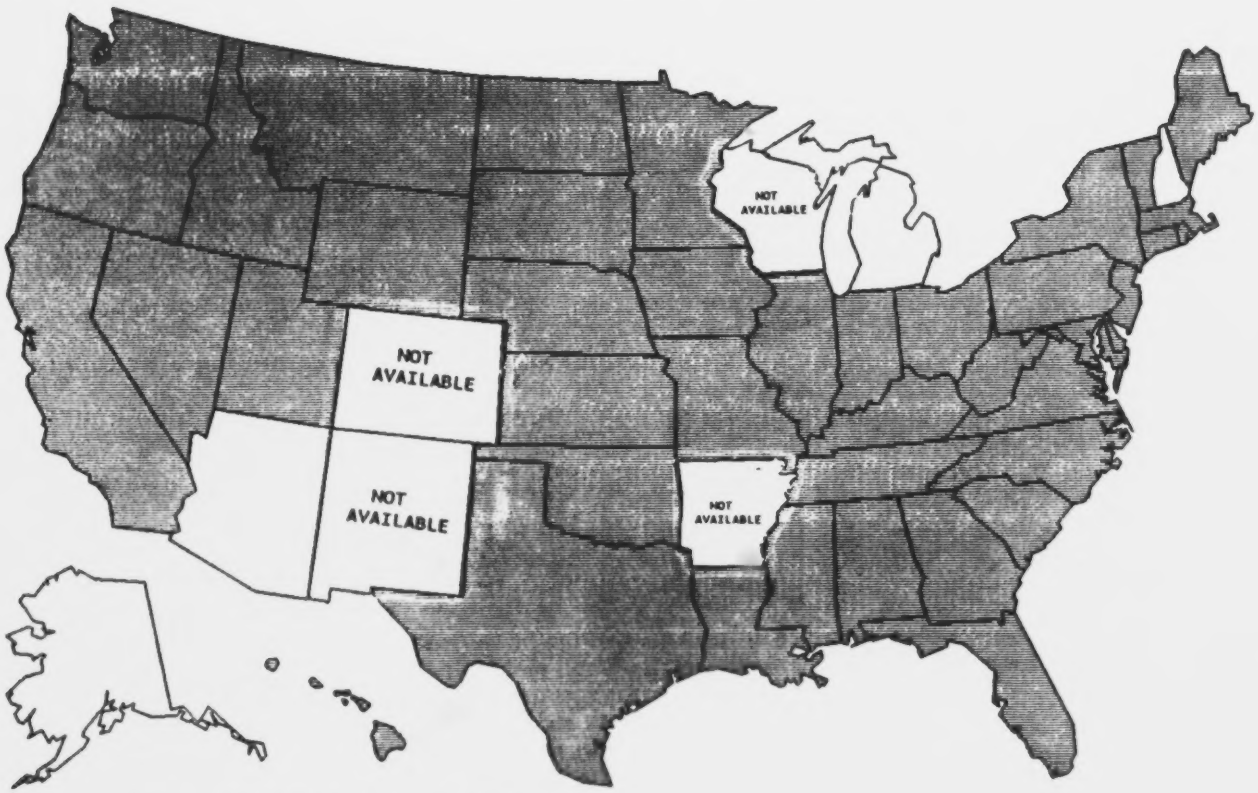


TABLE I

STATES AND TERRITORIES REPORTING DECREASED
HIGH SCHOOL (9-12) VOCATIONAL
EDUCATION ENROLLMENTS
IN 1984-85

STATE	GRADUATION REQUIREMENTS INCREASED	VOC. ED. COURSES REQUIRED FOR GRADUATION	VOC. ED. COURSE ALTERNATIVES MATH/SCIENCE	HIGH SCHOOL ENROLLMENTS
*Alaska	Yes	No	Yes	Increase
*Arizona	Yes	No	No	Increase
Connecticut	Yes	No	No	Decrease
Delaware	Yes	No	Yes	Decrease
Illinois	Yes	Yes	Yes	Decrease
Indiana	Yes	No	Yes	Decrease
Iowa	No	No	No	Decrease
Kansas	Yes	No	No	No change
Kentucky	Yes	No	Yes	No change
Maine	Yes	No	No	No change
*Michigan	No	No	No	Increase
Minnesota	No	No	No	Decrease
Missouri	Yes	No	Yes	Decrease
Nevada	Yes	No	Yes	Decrease
*New Hampshire	Yes	No	Yes	Increase
New Jersey	No	No	No	Decrease
North Dakota	Yes	No	No	Decrease
Ohio	Yes	No	No	Decrease
Pennsylvania	Yes	Yes	Yes	Decrease
South Dakota	Yes	No	No	Decrease
Vermont	Yes	No	Yes	Decrease
Virginia	Yes	No	Yes	Decrease
22 States/ Territories	18 Yes 4 No	2 Yes 20 No	11 Yes 11 No	4 Increase 15 Decrease 3 No change

*States/Territories reporting increased high school enrollments

the respondent stated that the increase in units for graduation was the prime cause for decreased high school vocational education enrollments. However, the respondent indicated that the problem was being addressed by a recent change in the state funding formula for vocational education programs for local school divisions. A financial incentive is now in place for high schools to enroll students in vocational education courses and so future enrollment increases are anticipated in Arizona.

In Alaska the respondent indicated that the State Board of Education increased high school graduation requirements effective in the spring of 1986. This requirement forced existing juniors and seniors to meet the new course mandates by their graduation date and reduced enrollments in elective courses including vocational education. In Michigan there was a slight increase in overall high school enrollments while the percentage of change in vocational education enrollments was approximately one percent. Approximately forty percent of all high school students in Michigan enroll in vocational education and there was not a significant drop in enrollments for vocational education students during the 1984-1985 school year according to the Michigan respondent.

Of the fifteen states and territories reporting increased vocational education enrollments, nine states had declining overall high school enrollments in 1984-1985 (see Figure 7). A telephone interview was conducted in the nine states to ascertain why vocational education enrollments increased during a year of declining high school enrollments (see Table II). The respondent from New York indicated that the major factor was the development of new programs as an outcome of a futuring process begun in 1981. Vocational education programs were redesigned and made relevant to market needs and attractive to students. In Georgia, an early release policy that required students to remain in school and be enrolled in classes five periods a day was eliminated. As a result, cooperative education program enrollments increased, helping to increase overall

FIGURE 7

DECREASED HIGH SCHOOL - INCREASED VOCATIONAL EDUCATIONAL ENROLLMENTS

1984-85

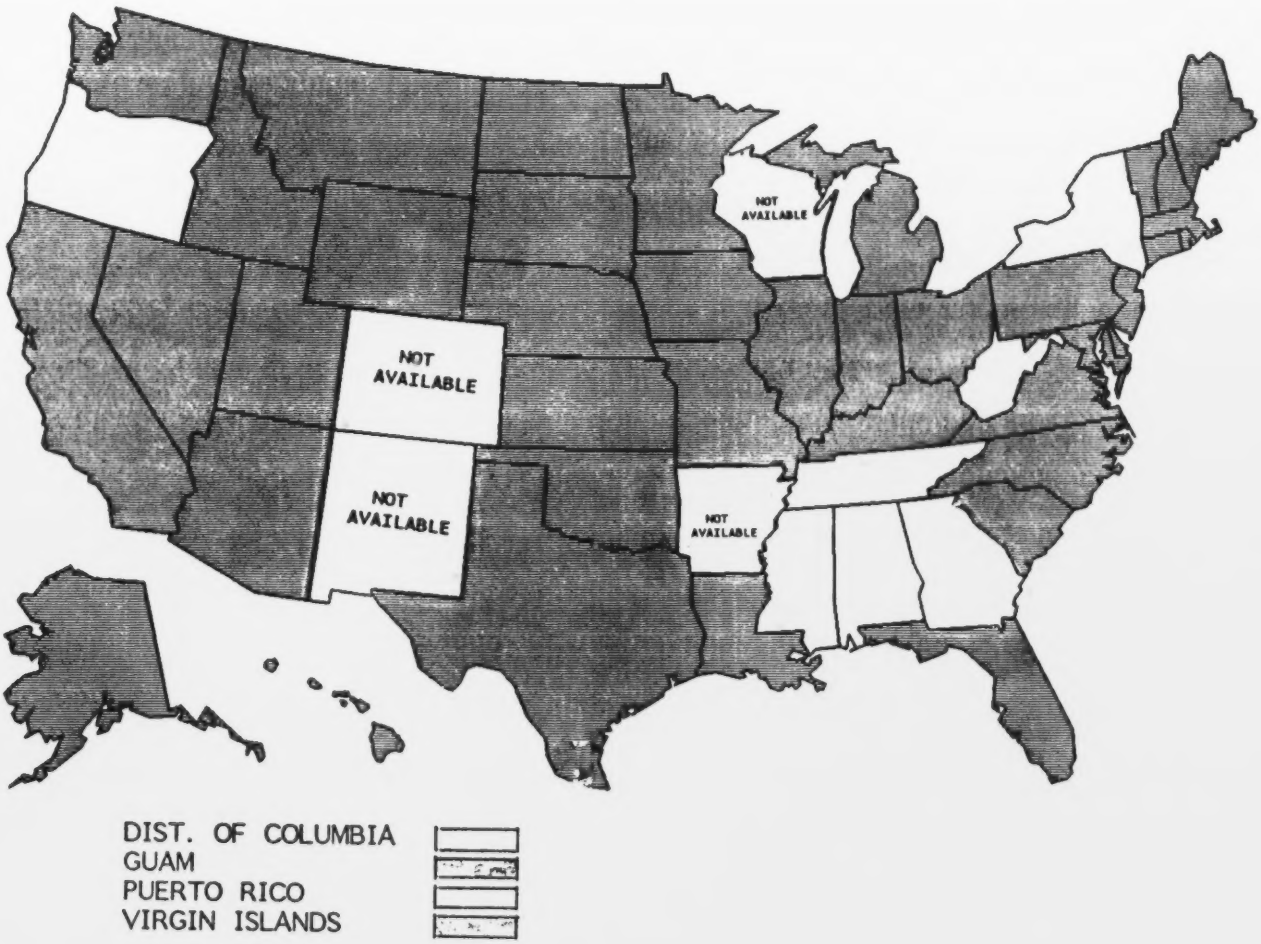


TABLE II

STATES AND TERRITORIES REPORTING INCREASED
HIGH SCHOOL (9-12) VOCATIONAL
EDUCATION ENROLLMENTS IN 1984-85

STATE	GRADUATION REQUIREMENTS INCREASED	VOC. ED. COURSES REQUIRED FOR GRADUATION	VOC. ED. COURSE ALTERNATIVES MATH/SCIENCE	HIGH SCHOOL ENROLLMENTS
*Alabama	Yes	Yes	No	Decrease
Florida	Yes	Yes	Yes	Increase
*Georgia	Yes	Yes	Yes	Decrease
Hawaii	Yes	No	Yes	No change
*Mississippi	Yes	No	Yes	Decrease
Montana	Yes	No	No	Increase
*New York	Yes	Yes	Yes	Decrease
*Oregon	Yes	Yes	Yes	Decrease
*Tennessee	Yes	No	Yes	Decrease
Texas	Yes	No	No	Increase
*West Virginia	Yes	Yes	No	Decrease
*Dist. of Columbia	Yes	No	Yes	Decrease
Guam	Yes	No	Yes	Increase
*Puerto Rico	No	No	No	Decrease
Virgin Islands	No	Yes	No	Increase
15 States/ Territories	12 Yes 2 No	7 Yes 8 No	9 Yes 6 No	5 Increase 9 Decrease 1 No Change

*States/territories reporting decreased high school enrollments

vocational education enrollments. A second factor, according to the respondent from Georgia, was a new funding mechanism that allocated funds to school districts on the basis of student full time equivalents in vocational education courses. In West Virginia, the respondent attributed the increased vocational education enrollment to a recent and concerted effort to enroll students in prevocational education programs. Then efforts were helped by further work with principals, counselors and teachers to recruit and place students in vocational education programs at the high school level. In the District of Columbia, a number of initiatives have been made to recruit students into vocational education programs. Among those cited by the respondent as effective were pairing high schools in the same vicinity as career development centers and actively recruiting adults, with particular emphasis on displaced homemakers, into secondary vocational education programs during regular school hours.

In Puerto Rico a grade point admission requirement for entrance into vocational education programs was eliminated, thus allowing more students to enroll in vocational education than was the case in previous years. The respondent from Alabama indicated that increased enrollments were caused by reducing instructional time periods from three hours to two hours for vocational education courses. This reduction increased student enrollments, particularly in the area vocational-technical centers. According to the individual interviewed in Oregon, most vocational education programs are provided in comprehensive high schools rather than area vocational centers and are offered in two-hour time periods that provide optimum student access. A policy of local option for students to receive credit for mathematics and science for selected vocational education courses was also cited as an other contributing factor. In Tennessee, the respondent cited several factors that included allowing variable time periods for vocational education courses and a state policy requiring computer courses to be taught by business education rather than mathematics

teachers. In Mississippi, local school divisions have increased the number of periods in the school day, thus allowing time for students to enroll in vocational education courses.

The results of the survey indicated that in 1984-1985 high school dropouts did not change significantly in twenty-seven out of fifty-three responding states and territories. There were eight states that did not have the information available; six states and Puerto Rico reported decreases in high school dropouts. Thirteen states and Guam reported increases in high school dropouts for the 1984-1985 school year as shown in Figure 8.

Composition of Vocational Education Programs

The student composition of vocational education courses was reported for each state and territory by the respective respondents. Information about increases, or decreases in numbers of handicapped and disadvantaged students, females in traditionally male programs and males in traditionally female programs was requested in the questionnaire.

There were twenty-four states and territories that reported increased numbers of handicapped students enrolled in vocational education programs with seventeen states indicating no significant change, seven reported decreased numbers of handicapped students and six states and territories that did not have the data available (see Figure 9). Twenty-two states and territories reported increased numbers of disadvantaged students enrolled in vocational education programs; nineteen states and territories indicated no change; and eight reported decreased numbers of disadvantaged students. Five respondents did not have data available as shown in Figure 10.

Twenty-six states and territories reported increased numbers of females in traditionally male intensive vocational education programs (see Figure 11). Ninteen states indicated no significant change; four noted decreasing female enrollments; five did not have the information available. In twenty-six states

FIGURE 8

HIGH SCHOOL DROPOUTS 1984-85

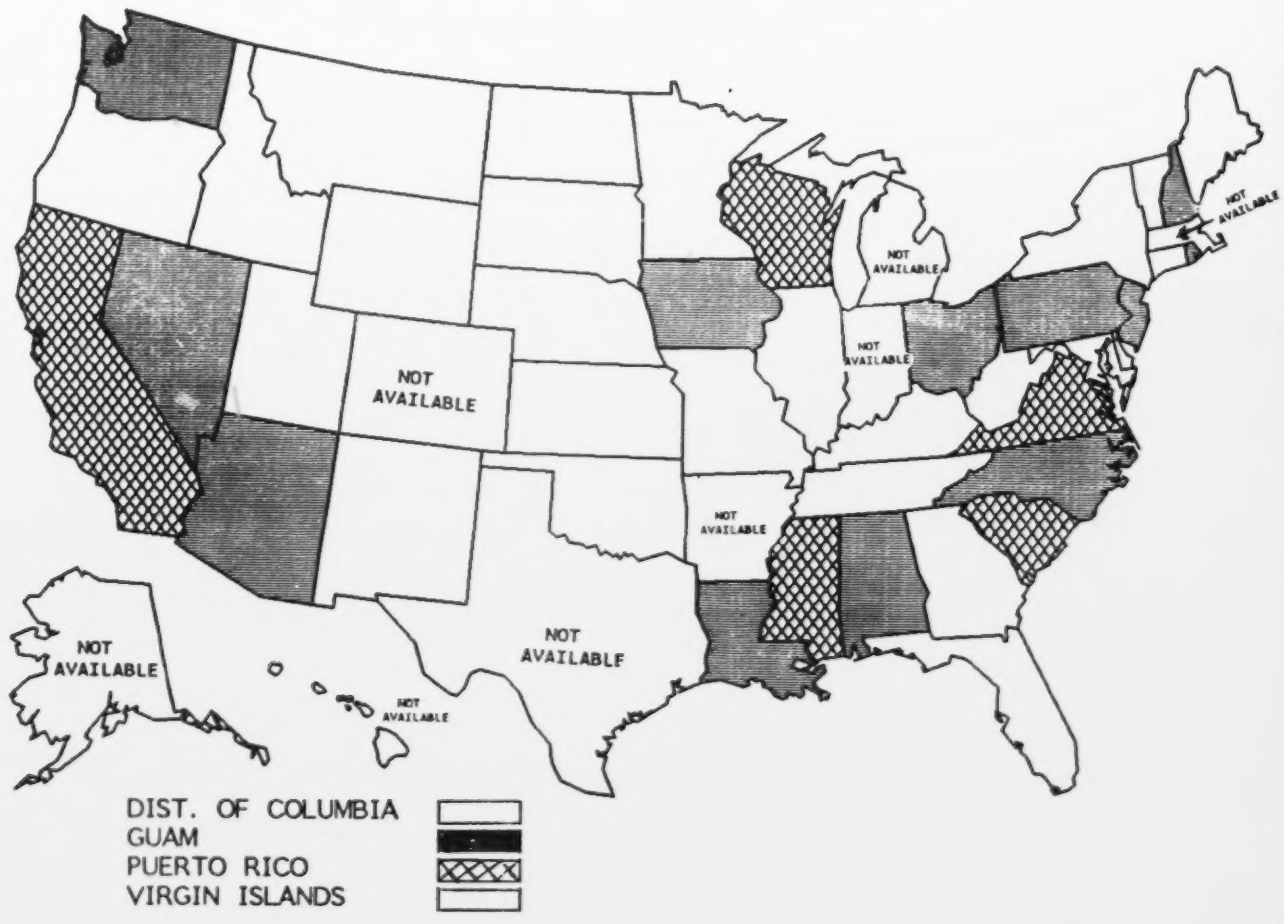


FIGURE 9

HANDICAPPED STUDENTS ENROLLED IN VOCATIONAL EDUCATION
1984-85

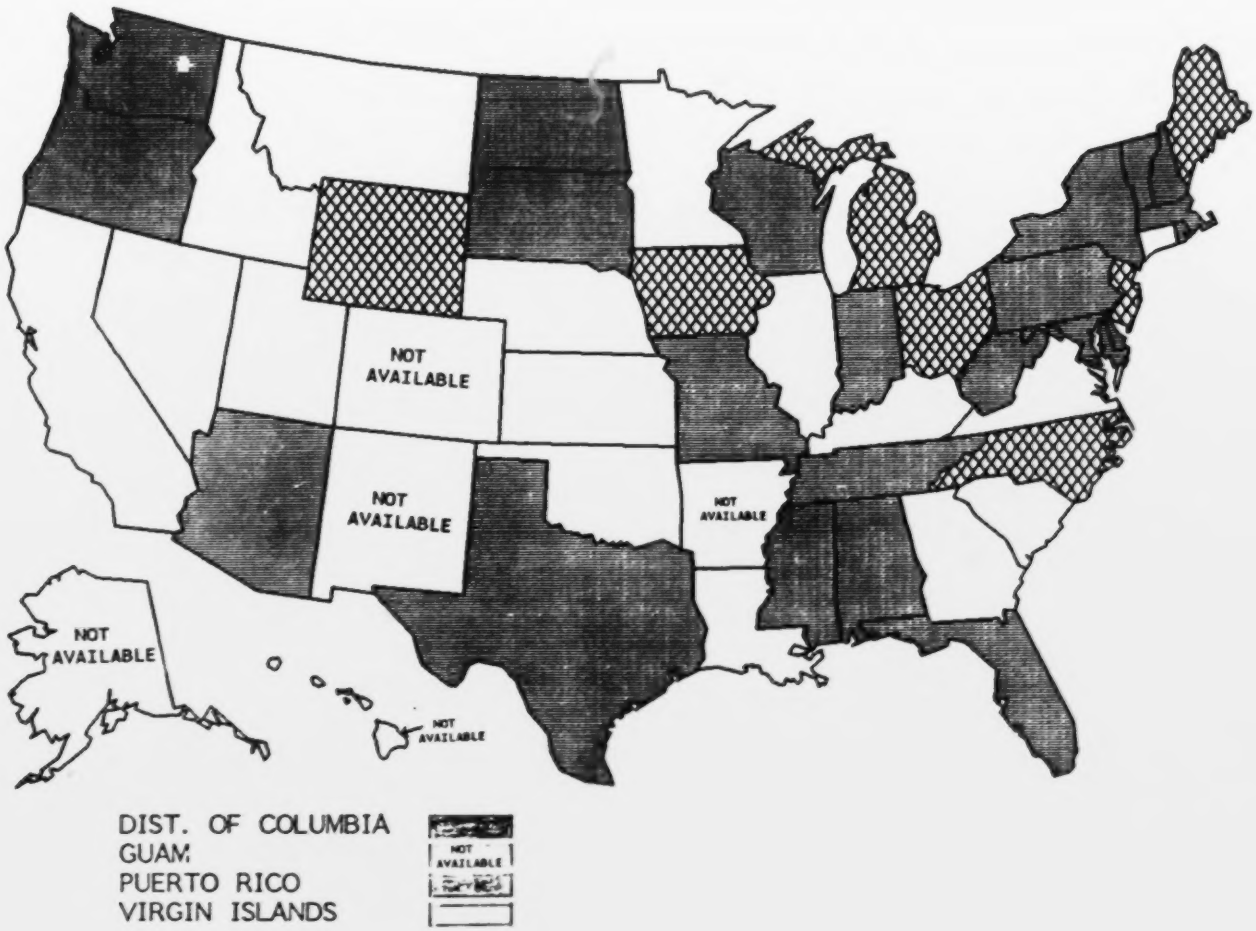


FIGURE 10

DISADVANTAGED STUDENTS ENROLLED IN VOCATIONAL EDUCATION
1984-85

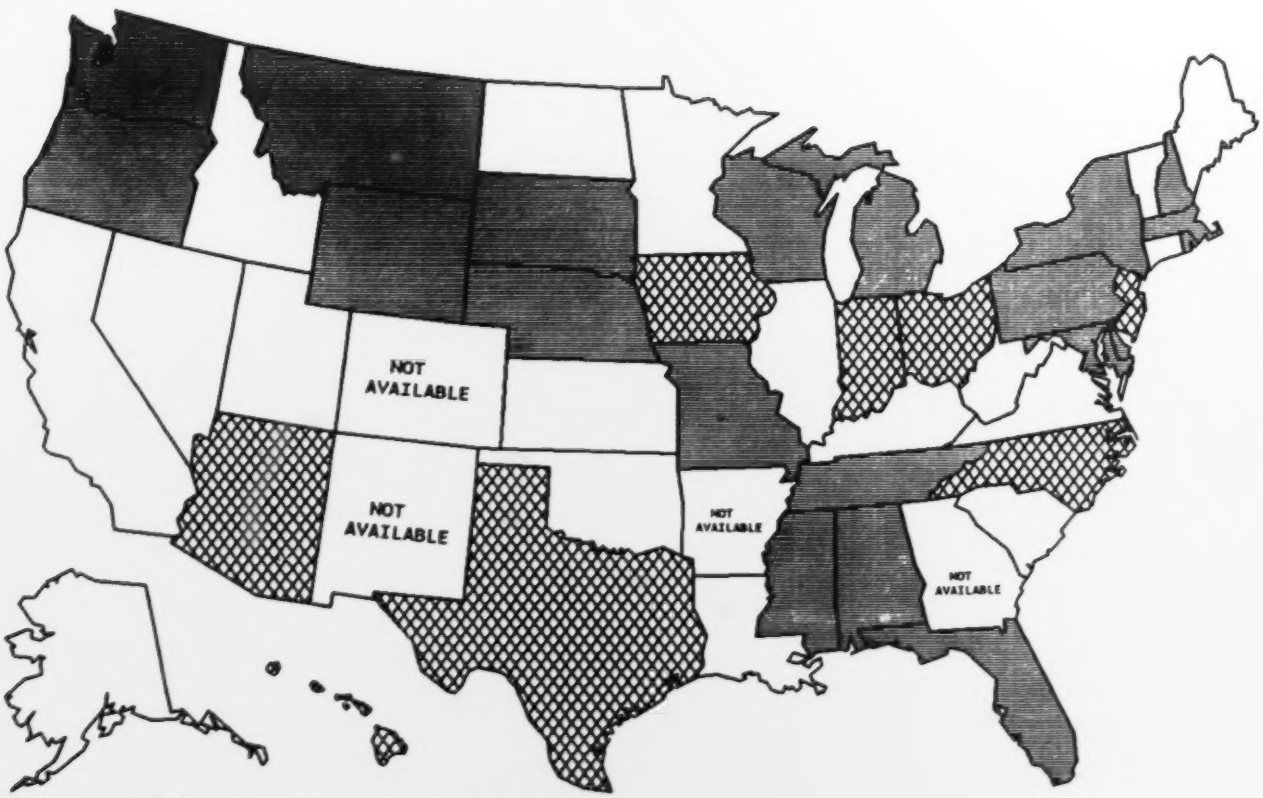


FIGURE 11

FEMALES ENROLLED IN TRADITIONALLY MALE VOCATIONAL PROGRAMS - 1984-85

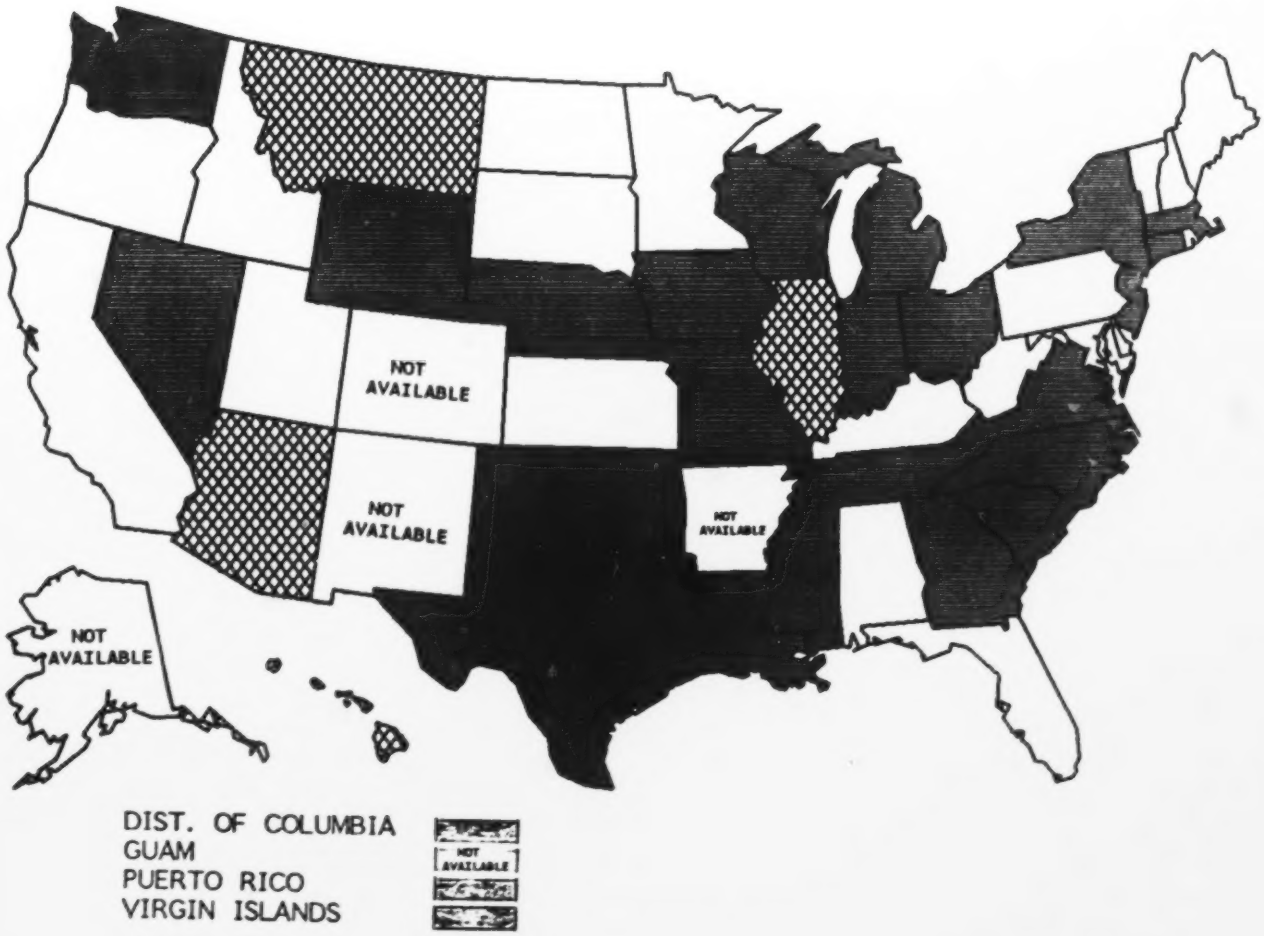
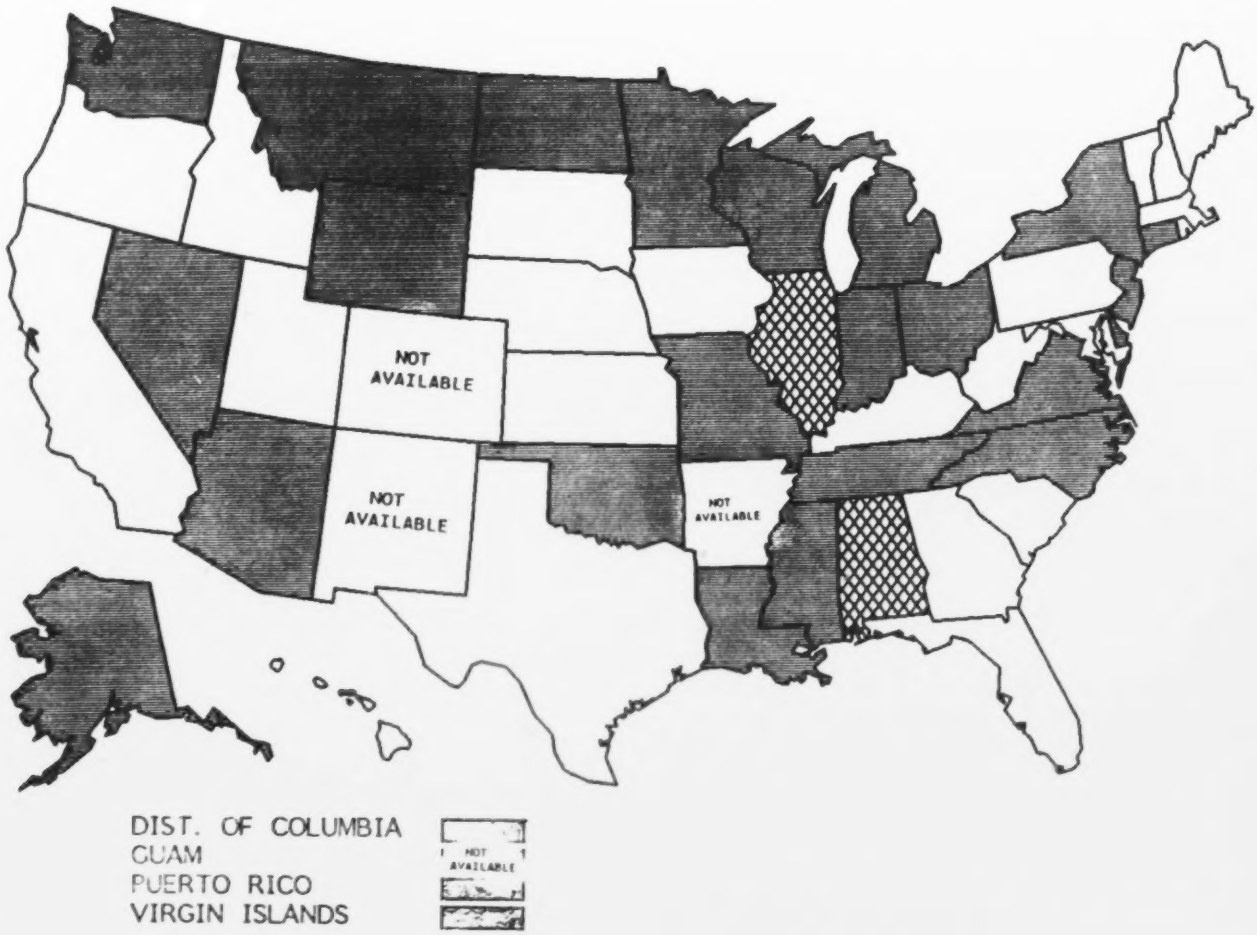


FIGURE 12

MALES ENROLLED IN TRADITIONALLY FEMALE VOCATIONAL PROGRAMS - 1984-85



and territories increased numbers of males were reported to be enrolled in traditionally female dominant vocational education programs (see Figure 12). Twenty-two states reported no change and two indicated decreased male enrollment in traditionally female programs. Five states did not have the data available.

Summary and Conclusions

The results of this study indicate that most states and territories have increased their high school graduation requirements during the past three years. Approximately one third of the states and territories have included vocational education courses as a part of the requirements for graduation from high school. Vocational education courses were appropriate alternatives for mathematics, science or English in about one-half of the states surveyed although many of these states had local options rather than state-mandated course requirements.

High school enrollments appear to be declining as reported for the 1984-1985 school year in over half of the states responding to the survey. Vocational education enrollments appear to be decreasing or stable in a majority of the states and territories. Half of the states and territories reported no change in the number of dropouts from high school. The data with respect to composition of vocational education enrollments showed increases in the number of handicapped and disadvantaged students being served. Half of the states and territories reported increased male and female enrollments in traditionally dominant male or female programs.

While high school graduation requirements have increased in most states and territories of the United States, high school enrollments are declining in most sections of the nation. Vocational education enrollments also appear to be declining. There is no conclusive evidence from the results of this study that increased high school graduation requirements are negatively affecting vocational education enrollments nationwide. However, several respondents did suggest that increased requirements were a major factor contributing to declines

in vocational education enrollments in their states and territories. Those states which evidenced increased vocational education enrollments and declining high school enrollments reported several factors which appeared to be successful in maintaining enrollments in vocational education. Among these were (1) financial reimbursements to school divisions based on student census rather than salary supplements or equipment funds, (2) offering relevant and marketable programs, (3) cooperative work experience programs in schools that require full course loads for students, (4) enrolling adults in the secondary school vocational education courses, (5) allowing variable time periods for vocational education courses, and (6) increased emphasis on prevocational education programs before high school.

It is recommended that state and local administrators of vocational education programs be responsive to declines in vocational education enrollments and use initiatives and strategies to provide students access into vocational education programs. The impact of the increased high school graduation requirements will not be observable on vocational education enrollments until the 1986-87 and 1987-1988 school years. Most students will be affected by the new standards as rising juniors and seniors during those years. This is the same period of time for selecting elective courses such as vocational education. It would be appropriate to continue the present study or similar ones to ascertain the outcome of the new standards for graduation on the quality and quantity of vocational education programs in the nation.

Related Literature

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[9]Anderson, B. Harold and Brouillette, Mary D. The Effects of Increased Academic Requirements For Graduation on Secondary Vocational Enrollments in Colorado. Fort Collins, CO: Department of Vocational Education, Colorado State University, February, 1985.

APPENDIX A

QUESTIONNAIRE

STATE _____

State Director of Vocational Education _____

Person Completing the Questionnaire _____

Address _____

PART I. HIGH SCHOOL GRADUATION REQUIREMENTS

1. Has your state board of education increased high school graduation requirements during the past five years?

   _____ Yes. Year requirements became effective _____

   _____ No (Please go to Part II)

2. Were vocational courses included as part of the new requirements for high school graduation?

   _____ No

   _____ Yes
   Specify what course(s) _____

   _____

3. Are any vocational programs or courses accepted as an alternative to math, science or other academic credits?

   _____ No

   _____ Yes
   Specify what course(s) _____

   _____

PART II. ENROLLMENT PATTERNS

Please indicate enrollment changes for each of the categories below by circling whether the enrollments have increased (I), no change (N), or decreased (D). Please circle, I, N, or D for the 1984-85 school year and the 1985-86 school year.

	1984-85	1985-86
4. High school enrollments in Grades 9 through 12	I N D	I N D
5. School dropouts in Grades 9 through 12	I N D	I N D
6. Vocational program enrollments in Grades 9 through 12	I N D	I N D

over

Number in vocational programs

	1984-85	1985-86
7. handicapped students in vocational programs 9 through 12	I N D	I N D
8. disadvantages students in vocational programs 9 through 12	I N D	I N D
9. females in traditionally male vocational programs 9 through 12	I N D	I N D
10. males in traditionally female vocational programs 9 through 12	I N D	I N D

PART III. ADDITIONAL INFORMATION (OPTIONAL)

1. Please provide any specific comments you wish with respect to changes in high school graduation requirements in your state.

2. Please provide any specific comments you wish, with respect to vocational education enrollment patterns in your state.

Thank you for your cooperation and assistance. A final report will be provided to your office reporting the results of the study. Please return in self addressed, stamped envelope.

APPENDIX B

STATE DIRECTORS OF VOCATIONAL EDUCATION

Alabama

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Division of Vocational Education
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Montgomery, AL 36130
205-261-5198

Alaska

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Administrator
Adult & Vocational Education
State Department of Education
Goldbelt Place
801 West 10th Street
Pouch F
Juneau, AK 99811
907-465-4685

Arizona

Mr. John T. Lange
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Education
State Department of Education
1535 West Jefferson
Phoenix, AZ 85009
602-255-5343

Arkansas

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Technical and Adult
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State Department of Education
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#3 Capitol Mall
Little Rock, AR 72201
501-371-2165

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Sacramento, CA 94244-2720
916-445-3314

Colorado

Mrs. Dorothy A. Horrell
State Director of Occupational Education
State Board for Community Colleges and
Occupational Education
1313 Sherman Street, Room 214
Denver, CO 80203
303-866-3071

Connecticut

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Associate Commissioner/Director
Division of Vocational and Adult Educ.
State Department of Education
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Hartford, CT 06145
203-566-4868

Delaware

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State Director of Vocational Education
State Department of Public Instruction
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Dover, DE 19901
302-736-4638

Washington, DC

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Associate State Superintendent of Vocational Education
Office of Vocational Education
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President/State Director for Vocational Education
Guam Community College
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Hawaii

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Illinois

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Illinois State Board of Education
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Indiana

Miss Geneva Fletcher
Executive Director/State Director of Vocational Education
State Board of Vocational and Technical Education
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Indianapolis, IN 46204
317-232-1814

Iowa

Mr. James D. Athen
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Iowa Department of Public Instruction
Grimes State Office Building
Des Moines, IA 50319
515-281-4702

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Louisiana

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State Board of Vocational Education
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State Department of Education
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State Director of Vocational
Education
Department of Education
Government of American Samoa
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Pago Pago, Samoa 96799
684-633-5238

Trust Territories of the Pacific Islands

Mr. John Perkins
Director Vocational and Adult Education
Office of Education
Office of the High Commissioner
Saipan, CM 96950

APPENDIX C

HIGH SCHOOL GRADUATION REQUIREMENTS
SINCE 1981

STATE	GRAD. REQ. INCREASE	VOC. ED. COURSES REQUIRED	VOC. ED. ALTERNATIVES TO MATH/ SCIENCE	ALTERNATIVE COURSE NAMES
Alabama	Y (1985-86)	Y Home Economics	Y	Business Math, Business English, (others are being considered)
Alaska	Y FY 86	N	Y	By local district policy vocational course work is allocated partial math/science/or English credit in Anchorage & other districts
Arizona	Y	N	N	
Arkansas	Y	Y	N	
California	Y	N	N	
Colorado	NA	NA	NA	
Connecticut	Y Phase in 1987-88	Y	N	
Delaware	Y 1985	N	Y	Ag Science, Business Math
Florida	Y 1985-86	Y 1/2 credit in practical arts	Y	Programs
Georgia	Y 1988	Y 1 credit	Y	Local systems option; no state mandated program
Hawaii	Y	N	Y	Vocational Ag, Electronics, (Foods & Nutrition)
Idaho	Y 1984	Y	N	

STATE	GRAD REQ. INCREASE	VOC. ED. COURSES REQUIRED	VOC. ED. ALTERNATIVE TO MATH/ SCIENCE	ALTERNATIVE COURSE NAME
Illinois	Y	Y English, soc studies, math, science, foreign lang.	Y	Local school board decision-more than 50% of content must be academic
Indiana	Y 1988	N	Y	Business Math, Business English, Business Communications
Iowa	N	N	N	
Kansas	Y 1985	N	N	
Kentucky	Y	N	Y	Business Math, Business Communications, Introduction to Computers & Special Topics in Biological Science & Physical Science for Horticulture, Health Services Cosemotology, Practical Nursing, Electronics, Air Conditioning, Electricity and Radio/TV Repair
Louisiana	Y 1984-85	N	Y	Business English can be substituted for the 4th year English requirement & Business Math for one of the three math req.
Maine	Y 1988	N	N	
Maryland	Y 1987	Y Ind Art/Tech Home Econ. or approved Ag, Bus & Office, Marketing, Ag, T&I	Y	Principles of Technology (science)
Massachusetts	N	N	N	
Michigan	N	N	N	

STATE	GRAD REQ. INCREASE	VOC. ED. COURSES REQUIRED	VOC. ED. ALTERNATIVE TO MATH/ SCIENCE	ALTERNATIVE COURSE NAME
Minnesota	N	N	N	
Mississippi	Y	N	N	
Missouri	Y 1984	N	Y	May count one of four vocational agriculture credits as a general science
Montana	Y 1985	N	N	
Nebraska	Y 1985-86	Y Voc courses are a part of the core curriculum	Y	Principles of Technology has been accepted by schools conducting for science credits. The local school district board determines alternative courses
Nevada	Y 1988	N	Y	If local school district can justify basic skills in voc. ed. courses
New Hampshire	Y 1985-86	N	Y	Agreements for academic credit from a voc prog. maybe negotiated on the local level. This agreement must then be approved by the state.
New Jersey	N	N	N	
New Mexico	Y 1986	N	N	
New York	Y 1985-86	Y 1 unit in Tech Ed in J.H. & 3/4 units in Home career skills in J.H.	Y	Occ. Math, Occ. Science, Bus Math, Ag Production, & selected trade & technical programs
North Carolina	Y 1986	N	Y	Variety in all V.E. areas. Discretion is left to local principal to determine

STATE	GRAD REQ. INCREASE	VOC. ED. COURSES REQUIRED	VOC. ED. ALTERNATIVE TO MATH/ SCIENCE	ALTERNATIVE COURSE NAME
North Dakota	Y	N	N	
Ohio	Y 1983	N	N	
Oklahoma	Y 1986-87	N	Y	Voc Ag only by local ed institutional option
Oregon	Y	Y	Y	Determined at local level-Ag for Science Primarily
Pennsylvania	Y 9/85	Y 5 units of credit may be elect. These may include all vocational education courses	Y	Business math and Business English. A waiver of one math credit for accounting.
Rhode Island	Y	Y	N	
South Carolina	Y 1983-84	N	Y	Computer science may be used as one of the three required math units. Six units in an occ. voc. area may be used to substitute for one of the two required science units.
South Dakota	Y 1986-88	N	N	
Tennessee	Y 1987	N	Y	Principles of Tech (Science) Tech. Math
Texas	Y 1984-85	N	N	
Utah	Y 1989	Y Voc Core	N	
Vermont	Y 1989	N	Y	Academic skills embeded in voc courses may be used to satisfy state board requirements

STATE	GRAD REQ. INCREASE	VOC. ED. COURSES REQUIRED	VOC. ED. ALTERNATIVE TO MATH/ SCIENCE	ALTERNATIVE COURSE NAME
Virginia	Y 1984	N	Y	
Washington	Y	N	Y	Whatever local school dist. elect to include examples math-science
West Virginia	Y	Y 1 unit from applied arts which includes voc ed is req. for grad.	N	
Wisconsin	Y 1989	N	Y	Under special circumstances, ag-sci. Business Eng.-English
Wyoming	N	N 2 voc ed courses	N	
Dist of Columbia	Y 1984	N	Y	Science & Technology
Guam	Y	N	Y	
Puerto Rico	N	N	N	
Samoa	No response	NR	NR	
Trust Territories of the Pacific Islands	No response	NR	NR	
Virgin Islands	N	N	N	

APPENDIX D

1984-85 ENROLLMENT PATTERNS IN GRADES 9-12

STATE	H.S. ENROL	DROP OUTS	VOC ED ENROL	HANDICAP ENROL IN VOC ED PROG	DISADV ENROL IN VOC ED PROG	FEMALES IN TRAD MALE VOC ED PROG	MALES IN TRAD FEMALE VOC ED PROG
Alabama	D	I	I	I	I	N	D
Alaska	I	NA	D	NA	N	NA	I
Arizona	I	I	D	I	D	D	I
Arkansas	NA	NA	NA	NA	NA	NA	NA
California	I	D	N	N	N	N	N
Colorado	NA	NA	NA	NA	NA	NA	NA
Connecticut	D	N	N	N	N	I	I
Delaware	D	N	D	I	I	N	I
Florida	I	N	I	I	I	N	N
Georgia	D	N	I	N	NA	I	N
Hawaii	N	NA	I	NA	D	D	N
Idaho	N	N	N	N	N	N	N
Illinois	D	N	D	N	N	D	D
Indiana	D	NA	D	I	D	I	I
Iowa	D	I	D	D	D	I	N
Kansas	N	N	D	N	N	N	N
Kentucky	N	N	D	N	N	N	N
Louisana	D	I	N	N	N	I	I
Maine	N	N	D	D	N	N	N
Maryland	D	N	N	I	I	N	N
Massachusetts	D	NA	D	I	I	I	N
Michigan	I	NA	D	D	I	I	I
Minnesota	D	N	D	N	N	N	I
Mississippi	D	D	I	I	I	I	I
Missouri	D	N	D	I	I	I	I
Montana	I	N	I	N	I	D	I
Nebraska	D	N	N	N	I	I	N
Nevada	D	I	D	N	N	I	I
New Hampshire	I	I	D	I	I	N	N
New Jersey	D	I	D	D	D	I	I
New Mexico	I	N	NA	NA	NA	NA	NA
New York	D	N	I	I	I	I	I
North Carolina	D	I	N	D	D	I	I
North Dakota	D	N	D	I	N	N	I
Ohio	D	I	D	D	D	I	I
Oklahoma	N	N	N	N	N	I	I
Oregon	D	N	I	I	I	N	N
Pennsylvania	D	I	D	I	I	N	N
Rhode Island	D	I	N	I	I	N	N
South Carolina	D	D	N	N	N	I	N
South Dakota	D	N	D	I	I	N	N
Tennessee	D	N	I	I	I	I	I
Texas	I	NA	I	I	D	I	N
Utah	N	N	N	N	N	N	N

Vermont	D	N	D	I	N	N	N
Virginia	D	D	D	N	N	I	I
Washington	D	I	N	I	I	I	I
West Virginia	D	N	I	I	N	N	N
Wisconsin	D	D	NA	I	I	I	I
Wyoming	N	N	N	D	I	I	I
District of Col.	D	N	I	I	I	I	I
Guam	I	I	I	NA	NA	NA	NA
Puerto Rico	D	D	I	I	I	I	I
Samoa	No response		NR	NR	NR	NR	NR
Trust Territories of the Pacific Islands	No response		NR	NR	NR	NR	NR
Virgin Islands	I	N	I	N	N	I	I

APPENDIX E

ADDITIONAL COMMENTS

STATE	COMMENT
Alabama	1. No comment 2. Our overall enrollment in vocational education has increased over the past five years, even though public school enrollment has declined. Flexible scheduling and new approaches have been instrumental.
Alaska	No comments
Arizona	No response
Arkansas	No response
California	1. Student have less time to take vocational programs or electives. 2. Data has not been compiled for 85-86. Our best guess is that voc ed enrollments are down. Sample studies show 8%.
Colorado	No comments
Connecticut	1. Court legislation attached to the questionnaire. 2. Enrollment is decreasing in Ct. Secondary Schools and will bottom out in 1992. With the new high school requirements voc ed programs will suffer in terms of enrollees, positions, number of programs and funding.
Delaware	1. Summary is attached to the questionnaire. 2. No comment.
Florida	1. The requirement of (grades 9-12) 24 credits including 4 English, 3 math, 3 science, and 3 social science--improve the basic skills of all students, including vocational students. 2. Vocational Education is improving in Florida.
Georgia	1. See policy. 2. Increasing.
Hawaii	1. It may be too early to tell whether graduation requirement increases have affected enrollment in vocational courses. 2. No comment.

STATE	COMMENTS
Idaho	1. Idaho graduation requirements are attached to questionnaire. 2. We anticipate enrollment reduction in some areas where substantial time is required to complete a program (Ag. & T&I). However, we also anticipate increasing enrollments in programs offering more flexibility to the student.
Illinois	1. With the increase in requirements for entry into college in 1990 we anticipate substantial impact on vocational education. There is simply not enough time in the typical 406 minute school day to take elective options, like vocational education. 2. We anticipate drop in enrollment, the big drop starting in 1985-86 and continuing on through 1990.
Indiana	1. Information is not yet available on the impact of changes made in the graduation requirements. 2. Vocational Education enrollment patterns at the secondary level have held at about the same percentage levels as in recent years; postsecondary enrollments have increased both in actual figures and percentage of total enrolled in postsecondary education programs; and adult vocational education programs have increased significantly in the past several years.
Iowa	1. No comment. 2. Total Vocational Education enrollment is decreasing slightly. Exploratory enrollment is increasing due to Industrial Arts enrollment.
Kansas	No comments.
Kentucky	1. Additional requirements for Math and Science credits have hurt enrollments, particularly in programs located in area vocational schools or those not located in the local high school. It has made it extremely difficult for students to take a course that is more than 1 hour in length in a given year. 2. Students are continuing to enroll in a one hour typing class, home economics, etc., but enrollment has dropped significantly in two/three hour labs and preparation programs.
Louisiana	1. Prior to 1984-85, 22 units were required for graduation; 13 1/2 units were in required subjects and 8 1/2 units were in electives (See attachment, Table 1). Presently, 15 1/2 units are required and 7 1/2 units are electives (See attachment, Table 2). In addition to the increase of two units of required subjects, specific courses are not mandated for graduation in the areas of English, Math, Science, Social Studies, and Health and Physical Education. One-half unit of Computer Literacy is also

STATE		COMMENTS
Louisiana cont.		required for graduation. The elective area was decreased by one unit; however, if a student has to repeat a required subject this further lessens the number of units he/she can take in vocational education or in other areas. The competition among the elective programs is more intense and enhanced recruitment efforts are mandatory.
	2.	The secondary vocational enrollment pattern has remained constant in Louisiana over the last three years. It is felt that if a decrease is to occur due to the increased graduation requirements, it will do so beginning in the 1987-88 school year. Those students who were freshmen when the new requirements started will now be seniors and will possibly have less time to take electives. It is anticipated that the cooperative education courses that require the student to be on the job a minimum of 15 hours per week will show the greatest decrease in enrollment.
Maine	1.	The School Reform Act of 1984 made many sweeping changed. The Education Committee is beginning to respond and I feel in a year or two we may have additional changes.
	2.	These enrollments seem to be leveling off.
Maryland	1.	Real changes in enrollments will occur in 1988.
	2.	Real changes will occur in 1988. Cannot predict increase or decrease.
Massachusetts	1.	Local schools have increased graduation requirements considerably during the past three years. Vocational technical schools have always required a greater number of academic courses than "regular" schools on a statewide average. State Board of Regents implemented new requirements for admission to public higher education which has effected local schools.
	2.	The vocational education enrollments have decreased slightly not to the degree that overall enrollments have declined.
Michigan	1.	As indicated to the attached publication, high school graduation requirements are the responsibility of each local school district. The State Board of Education has recommended certain graduation requirements and in general local districts are moving in that direction, however, there are expectations and the time frames are not uniform.
	2.	Slight annual declines have occurred in total vocational enrollment in Michigan over the past several years. This trend is consistent with Michigan's total secondary population. Approximately 40 percent of Michigan's secondary student population is served in vocational education programs.

STATE	COMMENTS
Minnesota	1. State board increased requirements/programs that must be provided by all school districts. Students must have access-does not include voc ed. Voc ed is still an elective, State Board has legislative authority to mandate but recently decided not to require all districts to offer access to 560 hours of voc ed. We were very disappointed. 2. We are exper. a dramatic drop in number who are part. voc ed "excellence movement" local district increase in
Mississippi	No comments.
Missouri	1. The state has increased its high school graduation requirements by two credits (20 to 30) and altered the specific course requirements within the total credit structure. With the increase of the high school graduation requirements there appears to be a tendency to lower the number of enrollment into vocational education programs. This has been true to some extent. It is difficult to compare because the total enrollment in high school age students has also decreased. Even though the total number of high school student enrolling into vocational program has decreased, as has the total number of high school age students, the percentage of student involvement (enrollment) in vocational programs has increased when compared to student enrollment potential. It is generally accepted that it is becoming more difficult to schedule multiple "block" time for vocational programs into the high school schedule and more flexibility would assist this effort. Also, because of travel time for a sending school to an area vocational school the difficulty of scheduling is increased. 2. Vocational education enrollment at the secondary level has for the past five years, declined and the enrollment at the adult level has significantly increased; resulting in an increase in overall enrollment.
Montana	1. Clear data is not available at this time since improved reporting procedures may have created false impressions. 2. The only clear drop in enrollment has been in vocational agriculture programs. This may reflect national trends.
Nebraska	1. Effective 7-1-87, each four-year high school grades (9-12) still require at least 200 credit hours for graduation of which at least eighty percent shall be from the core curriculum. (Vocational Education is part of the core curriculum) Effective for 85-86 school year, each accrediated high school must have the time equivalent of 1080 instructional hours. (This needs to be 175 days of instruction) 2. It is somewhat early to determine; however, I do not believe the new educational requirement in our state

STATE	COMMENTS
Nebraska cont.	will have a great effort on the high school vocational ed enrollment. Possible a 15-25% decrease. (This has been effected also because of the non-maintenance clause in the new Carl Perkins Vocational Education Act).
Nevada	No comments.
New Hampshire	1. Our new standards were strictly get tough and get on the academic bandwagon type. Our state is number one in SAT scores and wants to stay that way. There is a list of electives from which a student must chose and Voc Ed is one of those electives along with others. If a credit (academic) is to be granted for taking a voc program that agreement must first be worked out on the local level then submitted to the state for approval. This is a brand new policy and no one has implemented it as far as I know. Although there is a great deal of interest in it on the part of voc educators. I also expect that any such agreements will have to be initiated by those very same voc educators. The way our standards are structured with our such agreements if a pupil fails two or more required academic courses there is no way he/she can take a voc program if they want to graduate. We already are beginning to see a small increase in dropouts and expect this to rise. 2. We are beginning to see changes in our enrollments and feel it is due to these new standards. For the first time in years vocational enrollments have begun to decline even though total high school enrollments are going up. We are also beginning to see a change in the enrollment patterns. The traditional two year enrollment is decreasing while we see an increased percentage of 1 year enrollments. These 1 year enrollments are of two types 11th graders who leave a voc program in the 12th grade to make up academic credits and 12th graders who have enough academic credit and are trying to quickly get a job skill before graduation. Also due to the Perkins Act the vocational programs are enrolling more and more D&H students. While morally this may be correct it seems to have the effect of making vocational programs less desirable to non D&H students and reenforces the concept that many administrators have that voc ed is the place for the less desirable student. If the President's budget cut off through it will almost be impossible to negate this viewpoint.
New Jersey	No comments
New Mexico	1. Recent legislative action caused an increase in academics (required) and decrease in electives. Extracurricular activities now require a 2.0 GPA for participation. 2. Too early to determine real effect.

STATE	COMMENTS
New York	1. No comment. 2. Voc ed enrollments are up dramatically in programs where we have abandoned traditional programs and restricted to make them responsive to changing trend in business, society and family. Traditional programs are hurting in enrollments and status.
North Carolina	1. Increase from 18 to 20 units. State did not increase required courses, current 11 required units, 9 electives, left to local to add more required courses, if desired and reduce electives. Many are doing. 2. Major change is decrease in number of enrollees in V.E. programs at grades 9 and 10 and increase at 11 and 12. Counselors are forcing requirements on students in grades 9 and 10. Will have significant long-range impact on current sequencing of course in grades 9-12.
North Dakota	1. Although the required number of graduation requirements increased by one, most local school districts also increased their requirements. This still allowed students the same number of electives to be taken in their program. However, students are opting for different electives such as foreign language or more math beyond the required units which decreases the number of students taking vocational offerings. 2. Enrollment in the secondary vocational programs has declined slightly. This is die to the overall declining enrollment in our secondary schools and the poor economy in the farm and energy areas. The postsecondary enrollment in the vocational-technical areas have increased slightly. Enrollment in the adult programs has remained about the same.
Ohio	1. A math requirement was added, but we have initiated a new vocational education structure by which applied academics can become a portion of the funded vocational unit. The academics will be taught by certificated teachers, but the academics must be correlated with the skill development of the laboratories taught by vocational teachers. 2. We have just noted that enrollments in the area vocational schools have decreased; however, with other increases we are maintaining about the same percentage of students in vocational education (in raw numbers and by percentage). A special task force has just been appointed to review all data related to enrollments and funding in vocational education with forthcoming recommendations by September 15, 1986.
Oklahoma	1. Changes that have been enacted in the college entrance requirements have impacted enrollment as much as changes in graduation requirements have. 2. No comment.

STATE	COMMENTS
Oregon	No comments.
Pennsylvania	1. The increase in graduation requirements in the areas of science and math has caused difficulty in scheduling students in vocational programs. If students fail a required subject, it is also difficult to take vocational education at the area vocational technical schools. 2. Enrollment patterns in vocational programs show slightly more decline than the enrollment patterns in general at secondary level.
Rhode Island	No response
South Carolina	1. The State Board regulation for graduation requirements is enclosed. 2. Vocational enrollments have declined dramatically this year, primarily in non-occupational courses at the ninth and tenth grade levels. It is quite probable that the students who would have enrolled in these courses have enrolled in remedial math and remedial English courses, where there has been a substantial increase in enrollment, as mandated by the Education Improvement Act of 1984.
South Dakota	1. The high school graduation requirements established by the state board should not have an effect on vocational enrollments. However, local boards have increased their requirements for academic subjects which have had a negative impact on vocational enrollments. 2. It is expected that vocational education enrollments will increase beginning in the 87-88 school year. The change could be dramatic at the post secondary level because of the new, more restrictive, college entrance requirements established by the regents.
Tennessee	1. One unit in math and science will be required for H.S. graduation 1987. Vocational education had to change since it is an elective curriculum. Flexible scheduling especially in three hours blocks of time and the addition of basic course to vocational curriculum. 2. Secondary vocational enrollment has increased this year which was surprising. We feel flexible scheduling, guidance, and school administration workshops have helped to inform persons about vocational education.
Texas	1. At the present time, graduation requirements have had little affect on enrollments, however, we are projecting a decrease in the future. 2. No comment.
Utah	No comments.

STATE	COMMENTS
Vermont	No comments.
Virginia	1. One additional math and one additional science credit is now required of all high school graduates in Virginia. In addition, certain requirements prescribing additional math, science, and foreign language have been put into effect by the State Board for those students who receive the "Governor's Seal" or "Board of Education Seal." 2. Overall enrollment patterns in vocational education are proportional to statewide declining enrollment patterns.
Washington	No comments.
West Virginia	1. Copy of the requirements are attached to the questionnaire. Overall the requirements have not affected enrollment. However, I believe that many disadvantaged students may be excluded from vocational offerings because of failing a required course. 2. No comment.
Wisconsin	No comments.
Wyoming	1. However, the students are not required to take voc ed the district is required to provide the programs. 2. We have them by district. No state totals yet.
Dist of Columbia	1. Beginning in 1980 students were required to acquire 20 1/2 carnegie units for graduation, rather than the original 17 1/2. In 1984, career centers began operating on a shared-time schedule. To make it possible for students to complete programs and obtain enough carnegie units needed for graduation, virtually all courses have been revised so that they can be completed in two years rather than three. Students now receive one carnegie unit for science and technology and one carnegie unit for mathematics and technology. 2. Enrollment in vocational education programs in Washington, D.C. has increased. Intergenerational learning (adult enrollment in day school programs) which is encouraged, has attributed to this increase. Concerted efforts by recruiters to enroll individuals in non-traditional areas have been very successful and is another contributing factor to increased enrollment.
Guam	No comments
Puerto Rico	1. The Department of Education is in the process of revising the high school curriculum for increasing graduation requirements. The changes made will be implemented during 1986-87 fiscal year. 2. No comment.
Samoa	No response

STATE	COMMENTS
Trust Territories of the Pacific Islands	No response
Virgin Island	1. High school graduation requirements were increased many years ago. Adjustments were made in the schedule for students taking vocational education courses. 2. We have experienced a steady increase over the years.